



Internship, Bachelor & Master Thesis Opportunities


3D-PRINTING MEETS ANALYTICAL CHEMISTRY — CREATE YOUR OWN IDEAS

Are you passionate about chemistry, additive manufacturing or lab-on-a-chip technologies? At IUTA, we are offering motivated students the opportunity to take part in cutting-edge research projects combining 3D printing and analytical chemistry. Our current focus is on the development of microfluidic systems that integrate chromatographic separation, either by embedding particulate stationary phases or by directly printing the separation material using additive manufacturing techniques.

You will have the chance to contribute to exciting, hands-on research in a fast-growing field, including:

 **3D-Printed Lab-on-a-Chip Systems** — Design and manufacture custom microfluidic devices for analytical applications using advanced CAD tools and 3D printing.

 **Chromatography Integration** — Develop new strategies to integrate stationary phases into LoC platforms, including printed separation structures or particle embedding.

 **From Concept to Prototype** — Take your own idea from a digital design to a functional prototype, including testing, method development and performance evaluation.

In addition, you'll be part of an interdisciplinary team that bridges chemistry, engineering and material science — offering you professional experience relevant to both academic and industrial careers.

WE ARE LOOKING FOR STUDENTS WHO:

- Are studying chemistry, chemical engineering, materials science, process engineering or related fields.
- Have a background in analytical chemistry or CAD design.
- Are motivated to work on experimental, hands-on projects.
- Are curious about interdisciplinary and application-oriented research.

WE CAN OFFER:

- Internships, Bachelor- and Master-Theses related to the mentioned topics.
- Open-minded, motivated and supporting work environment.
- State-of-the-art laboratories.

IUTA — Institut für Umwelt & Energie, Technik & Analytik e.V.

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AVAILABLE PROJECTS

Design and Testing of 3D-Printed Microfluidic Separation Systems

In this project, you will design microfluidic systems tailored for chromatographic separation, manufacture prototypes using 3D printing, and evaluate their performance using real analytical targets.

Development of Stationary Phases for Printed Separation Devices

Explore methods for embedding or printing stationary phases directly into LoC platforms. Topics include material selection, surface chemistry and functional testing with standard analytes.

CAD-Based Prototyping of Analytical LoC Devices

Focus on the design and simulation of fluid dynamics in microfluidic systems using CAD software. Ideal for students with strong technical or engineering backgrounds.